

REMARKS

Claims 1-25, 29-53, and 55-58 are now pending in the application, of which claims 23-25 and 29-53 have been withdrawn from consideration. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-3, 13-15, 18-22, and 55-58 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al. (U.S. Pat. No. 5,624,769) in view of Gordon (U.S. Pat. No. 4,146,657). Claims 1-2 and 55-57 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gyoten et al. (U.S. Pat. No. 7,005,205) in view of Gordon. Claims 4-12 and 16-17 are rejected under 37 U.S.C. 103(a) as being unpatentable over Li et al. in view of Gordon as applied to claim 1 above, and further in view of Applicants' Admitted Prior Art (heretofore 'the AAPA'). These rejections are respectfully traversed.

In the current Office Action, the Examiner acknowledged, but did not accept, Applicants' arguments that (1) Gordon is not reasonably pertinent to the problem confronting Applicants and (2) the combination of Gordon with Li et al. or Gyoten et al. both (a) fails to teach all of the elements of Applicants' claims and, in any event, (b) represents improper use of hindsight to arrive at the claimed combination. Rather than re-stating all of Applicants' arguments with respect to the cited references, Applicants rebut the new comments by the Examiner in the current Office Action. Applicants also address the Examiner's assertion of *prima facie* obviousness in view of Applicants' rebuttal argument and the evidence of record, including the inventor's declaration.

Where appropriate, Applicants' rebuttal includes reference to Applicants' prior arguments and evidence. Applicants respectfully request the Examiner reconsider his obviousness rejections in view of the entire record, including the declaration testimony and arguments advanced by Applicants. See, M.P.E.P. § 2145.

1. Examiner: "With respect to the term "*contiguous*", it bears noting that its meaning within the claimed invention is not very clear because such a term only means "adjacent", "neighboring", "bordering", "adjoining" or the like but it does not further limit the claims to have a "continuous" coating "fully" covering the plurality of lands as apparently argued by the applicant. Since the prior [art] of record discloses segmented coating portions, it can be said that those portions still read on applicant's claimed invention...Unless the term is defined in the specification, there is currently no reasonable definition of how such a limitation should be construed in the context of the claimed invention." (Paragraph 10).

Applicants respectfully submit the cited language of claims 1 and 55 is made clear by considering the plain and ordinary meaning of the terms used in these claims. Applicants further submit the separate, discrete, and sporadic deposits disclosed by Li et al. and Gyoten et al. do not read on the electrically conductive coating recited in these claims.

In Response to the Final Office Action dated July 18, 2008, Applicants amended independent claims 1 and 55 to more particularly recite the pertinent working surfaces covered by the coating and the manner in which the coating covers those surfaces. Specifically, claims 1 and 55 were amended and now recite a contact element having "an electrically conductive coating deposited on and *contiguously* covering *said plurality of lands of* said major working surface, wherein said *electrically conductive* coating includes a doped metal oxide composition." (Emphasis added to amended language).

Applicants amended the claims to recite the coating “contiguously” covers the lands to distinguish the coating recited in the claims and the structure of the separate, discrete, and sporadic deposits disclosed by the cited references. The Examiner objects stating that the meaning of the term “contiguously” is not very clear.

During examination, words of a claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *See, In re Zletz*, 893 F.2d 319, 321, 13 U.S.P.Q.2d 1320, 1322 (Fed. Cir. 1989); M.P.E.P. § 2111.01. Merriam-Webster defines “contiguous” as “touching or connected throughout in an unbroken sequence.” Merriam-Webster’s Collegiate Dictionary 270 (Eleventh Edition 2005). Merriam-Webster defines “cover” as “to lay or spread something over.” *Id.* at 288. Applying the plain and ordinary meaning of these terms in the context of the claims, Applicants submit claims 1 and 55 recite a coating that is spread over the lands in an unbroken sequence (i.e. contiguously covers). Claims 1 and 55 do not recite a coating which is characterized by separate, discrete, and sporadic deposits formed on the working surfaces of the contact element as taught by Li et al. and Gyoten et al. The foregoing interpretation is further supported by the plain meaning of the term “coating” to which the interpretation is applied. For example, Merriam-Webster defines “coat” as “a layer of one substance covering another.” *Id.* at 237. Applicants submit that this claim language, when considered in the proper context, is clear and unambiguous.

Applicants submit the meaning imparted by the term contiguously is fully consistent with the specification and the accompanying drawings. Applicants’ specification discloses the coating is formed as a thin uniform layer on the underlying sheet metal part used to form the bipolar plate. *See*, for example, Paragraph [0044].

Cross-sectional views of the coatings formed on the sheet metal parts are illustrated in Figures 3-7 and depict the coatings as thin layers that are spread over the lands in an unbroken sequence.

In view of the foregoing, Applicants respectfully submit the language of claims 1 and 55 is clear. Moreover, this language clearly distinguishes the claimed subject matter over the teachings of Li et al. and Gyoten et al. In particular, the deposits disclosed by the cited references are not coatings that are spread over the underlying substrate (e.g., lands) in an unbroken sequence as required by Applicants' claims. Claims 1 and 55 further recite the "coating provides electrical conductivity between said plurality of lands and said electrode." The deposits disclosed by Li et al. and Gyoten et al. do not provide electrical conductivity between the contact element and the electrode. Therefore, Applicants submit the deposits disclosed by Li et al. and Gyoten et al. also do not read on this further limitation of the coating recited in the claims.

2. Examiner: "In this case, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references...Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." (Paragraph 15).

Neither Li et al., nor Gyoten et al., suggest metal oxide coatings may be deposited on the contact elements of a fuel cell to provide conductivity between the contact element and an adjacent electrode. At most, Li et al. and Gyoten et al. disclose the formation of *non-conductive* metal oxides at sites on the contact element susceptible to the corrosive environment of a fuel cell. Gyoten et al. discloses a resin layer that includes Ru-metal oxide particles, however Gyoten et al. further discloses the

specific surface area of the particulate desirably should be small. See, Gyoten et al. Col. 4, lines 7-12. Thus, Applicants respectfully submit Li et al. and Gyoten et al. do not suggest applying metal oxide coatings to the contact elements of bipolar plate of a fuel cell as asserted by the Examiner. Instead, Li et al. and Gyoten et al. teach applying other non-metallic oxide coatings to the substrate or passivating layers of the bi-polar plate, such as TiN, as in Li et al., and electroconductive resin layers, as in Gyoten et al., to prevent, or at least inhibit the formation of metallic oxide deposits. See, also Applicants' Response dated February 21, 2008 and Vyas Decl. at Para. 16.

Gordon also does not suggest doped metal oxides may be deposited on the contact element of a fuel cell to provide the recited conductivity. As previously asserted by Applicants, Gordon is directed to solar cells and other optical-electronic devices that lack the caustic environment of a fuel cell which renders many metal oxides unstable. See Applicants' Response dated February 21, 2008 at 15. Moreover, while Gordon discloses doped metal oxide layers that exhibit good bulk conductivity, Gordon omits, both in the description and the application of the metal oxide layers, other important electrical (e.g., contact resistance) and anti-corrosive properties to suggest that such oxides would be useful to the contact element of a fuel cell. Applicants submit the bases relied on by the Examiner concerning Gordon, namely good bulk resistance and thermal expansion coefficient, do not suggest to one of skill in the art of fuel cells that doped metal oxides can be successfully applied to a contact element of a fuel cell.

In sum, Li et al., Gyoten et al., and Gordon, alone or in combination with the general knowledge of skilled artisans, do not suggest the doped metal oxides disclosed by Gordon may find application in the contact elements of fuel cells. See *Id.* at 15-17.

Accordingly, Applicants respectfully submit the combined teachings do not support the combination of the references suggested by the Examiner.

In addition to making the above assertions, the Examiner has concluded, but not specifically articulated, several rationales for asserting a case of *prima facie* obviousness.¹ The Examiner is required to provide a written record including findings of fact concerning the state of the art and the teachings of the references applied. Once the findings of fact are articulated, the Examiner is further required to provide an explanation to support an obviousness rejection. See, M.P.E.P. § 2141. Since the Examiner has not specifically applied the asserted rationales on the basis of articulated findings of fact, Applicants respectfully submit the Examiner has failed to present a *prima facie* case of obviousness.

Applicants have, on the other hand, presented detailed arguments and supporting evidence to rebut each of the Examiner's assertions.² When presented with rebuttal evidence, the Examiner should reconsider the bases of the rejection to confirm their continued viability. *Id.* Rather than applying and reconsidering the asserted rationales, the Examiner has summarily found Applicants' rebuttal argument ineffective on the basis of the Examiner's view of the scope of the claims. Applicants respectfully submit the Examiner's response to Applicants' rebuttal argument and evidence is misplaced, and the Examiner has also failed to properly reconsider any of the asserted bases for making the obviousness rejections.

Based on the foregoing and Applicants' prior arguments of record, Applicants respectfully submit the Examiner's *prima facie* case of obviousness has been properly

¹ See current Office Action at Paragraph 21. See also Office Action dated July 18, 2008 at Paragraph 21; Office Action dated March 19, 2008 at Paragraph 12; and Office Action dated November 21, 2007 Paragraph 8.

² See, for example, Applicants' Response dated February 21, 2008 at 15-19.

rebutted and claims 1 and 55 are allowable over the combination of Li et al. or Gyoten et al. and Gordon. The remaining rejected claims all depend, either directly or indirectly, from claim 1 or claim 55 and therefore are allowable for at least the same reasons. Accordingly, reconsideration and withdrawal of the Examiner's rejections of claims 1-22 and 55-58 are respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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Dated: January 30, 2009

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